DOCUMENT RESUME

ED 325 895 CS 507 336

AUTHOR Bast, Cathy; And Others
TITLE A Comparative Study of the Personalized System of Instruction and Traditional Classrooms in the Basic Course.
PUB DATE Apr 90
NOTE 84p.; Panel presented at the Annual Meeting of the Central States Communication Association (Detroit, MI, April 12-14, 1990).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Evaluative/Feasibility (142) -- Collected Works - General (020)

EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS Educational Research; Higher Education; *Instructional Effectiveness; Instructional Improvement; *Introductory Courses; *Program Evaluation; *Speech Communication; Speech Instruction; *Teaching Methods
IDENTIFIERS *Personalized System of Instruction; *University of South Dakota

ABSTRACT

A panel of instructors in the Speech Communication program at the University of South Dakota presented five papers containing the findings from an extensive analysis of their introductory course, the Fundamentals of Speech. The purpose of the analysis was to determine the result of adapting the Personalized System of Instruction (PSI) to specific institutional needs. The panel reported that the PSI sections enrolled a maximum of 30 students in each section, that traditional sections involved self-contained groups of up to 24 students, and that data were collected from nearly 400 students (who all completed six questionnaires each at the beginning and the end of the semester) in an effort to compare the two forms of instruction. Titles and authors of the panel papers presenting the findings include: "Introduction" (Cathy Bast); "Student Communicator Style in Traditional versus PSI Classrooms: A Study in Development and Change" (Janet K. Lewis and Julianna Hammond); "Developing Rhetorical Sensitivity: Do Pedagogical Methods Make a Difference?" (Doug Brenner and Cindy Stampe); "Cognitive Complexity and the Basic Course: A Differential Study in Student Development" (Cathy Bast and Mari Peters); "Differential Impacts of Traditional and PSI Basic Speech Courses on Communication Anxieties" (James J. Lewis and Pete Obermeier); and "Effects of Pedagogy on Speech Performance" (John McKiernan and Eric Uecker). (MG)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED325895

A Comparative Study of the Personalized System of Instruction and Traditional Classrooms in the Basic Course

A panel of five papers presented at the 1990 annual meeting of the Central States Communication Association (Detroit, MI).

Cathy Bast, "Introduction"

Janet K. Lewis and Julianna Hammond, "Student Communicator Style in Traditional versus PSI Classrooms:A study in Development and Change."

Doug Brenner and Cindy Stampe, "Developing Rhetorical Sensitivity: Do Pedagogical Methods Make a Difference?"

Cathy Bast and Mari Peters, "Cognitive Complexity and the Basic Course: A Differential Study in Student Development"

James J. Lewis and Pete Obermeier, "Differential Impacts of Traditional and PSI Basic Speech Courses on Communication Anxieties"

John McKiernan and Eric Uecker, "Effects of Pedagogy on Speech Performance"

References

CS507336

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
John McKiernan
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

A Comparative Study of the Personalized System of Instruction and Traditional Classrooms in the Basic Course

Introduction

Cathy Bast

The University of South Dakota has undergone extensive curricula review, as have many universities across the nation. After a decade of budget cuts, changing academic and social values, and student-as-consumer philosophy, many departments are attempting to discover creative and cost-effective ways to best meet the needs of students and faculty in the department and university. One way of balancing limited resources and meeting increasing demands is to move beyond established patterns of instruction.

Traditional methods of instruction, where the professor imparts information to students enrolled in a self-contained classroom and evaluates their learning by written and oral exercises, is the most common, accepted method of instruction for most classes. Even speech performance courses, with relatively low student enrollments, continue to rely on the traditional approach.

One popular alternative method is receiving attention is the Personalized System of Instruction (PSI), or Keller Plan. Five defining features of the PSI method make the approach attractive to students and professors alike. Mastery learning is at the foundation of PSI. Students demonstrate competency before moving on to the next task. Second, the system allows students to move at their own pace,

usually within a set of deadlines. Students become more responsible for their own learning. The stress on written material allows undergraduate proctors and faculty members to personalize the course content and motivate students to perform. The undergraduate student proctors are the fourth defining feature and make program attractive. The proctors monitor tests, tutor students, answer questions, handle routine matters of classroom operation, and motivate the students to perform. Finally, PSI uses lectures to motivate students rather than supply essential information.

PSI has been adopted in many fields of study, including psychology, sociology, composition, earth science, biology, chemistry, and mathematics. Departments generally use PSI for basic introductory courses. General descriptions of the development of and rationale for this type of instruction in various fields include Keller (1974, 1982), Keller & Sherman (1974, 1982), Sherman (1974), Karlin & Berger (1974), Sherman, Ruskin, & Lazar (1978), Gray, Buerkel-Rothfuss, & Yerby (1986), Seiler (1982, 1983), Sherman, Ruskin, & Semb (1982), and Seiler & Fuss-Reineck (1986).

Although apparently not widely adopted in the communication field, some departments include PSI as an alternative to the relatively costly method of traditional instruction. Some descriptions of use within the communication field include Staton-Spicer & Bassett, 1980; Scott & Young, 1976; Berryman-Fink & Pederson, 1981; and Hanna & Gibson, 1983.

Comparisons between the PSI and traditional lecture-recitation classrooms for basic courses have included Buerkel-Rothfuss & Yerby (1982), Gray, Buerkel-Rothfuss & Yerby (1986), and Gray, Buerkel-

Rothfuss & Thomas (1989). Modified versions of PSI are in place at George Mason University (Taylor, 1989) and Central Michigan University (Gray, Buerkel-Rothfuss, & Yerby, 1986), the result of adapting PSI to specific institutional needs. The PSI program is flexible enough to withstand modifications and retain the basic principles to make the system attractive to students and instructors.

Method of Study

The Speech Communication program at the University of South Dakota has engaged in an extensive analysis of its introductory course. The Fundamentals of Speech has been a hybrid course focused on public speaking, interpersonal communication and small group communication. The course serves the University as a General Education option for roughly 800 students each year. Traditional sections involve self-contained groups of up to 24 students, taught by a graduate teaching assistant and supervised by a faculty member. The PSI sections enroll a maximum of 30 students in each section, proctored by undergraduate lab assistants, managed by graduate teaching assistants, and supervised by a faculty member.

Supported by a faculty development grant, Dr. Janet Lewis reviewed the course during the summer of 1989. One outgrowth was a decision to move to a completely common set of assignments in the two courses. Another decision was to study the relative effectiveness of the two methods of instruction in the introductory course.

We collected data from nearly 400 students during the Fall 1989 semester in an effort to compare the two forms of instruction. We asked all students to complete six questionnaires included in their required class reading packets during a class session the first week

of school, before any significant instruction in speech communication. The questionnaires included: an audience analysis survey which provided demographic information about the students; a 40-item Rhetorical Sensitivity instrument; a 50-item Communicator Style questionnaire; a Role Category Questionnaire asking students to describe a person they admire and another they do not admire; a 30-item instrument assessing Communicator Competence; and a Communication Apprehension instrument, the PRCA-24. Completion time ranged from ten to 40 minutes. Some students completed the survey instruments outside of class.

We asked students to complete the same questionnaires at the conclusion of the semester, except for the audience analysis. The Role Category Questionnaire to assess Cognitive Complexity changed minimally, asking student to describe a person they liked and one they disliked. Due to the end of the semester scheduling difficulties, students often completed the survey instruments outside of class.

Instructors videotaped final speeches and obtained permission for their use in the study. Available speeches were evaluated separately by a graduate student and a faculty member. Evaluators used a familiar form devised for the use of grading students' speeches, evaluating thirty aspects and giving an overall evaluation and rank among a group on a videotape. In order to increase the possibility of noticing differences between traditional and PSI students, we expanded the original five-point scale to a seven-point scale.

Graduate students were responsible for data entry for all instruments completed in their assigned 101 sections. A graduate student volunteered to organize data entry for each of the

instruments. The graduate student and a faculty member were also responsible for an initial statistical analysis of the data.

Each paper describes method in more detail.

Student Communicator Style in

Traditional versus PSI Classrooms:

A study in Development and Change

Janet K. Lewis and Julianna Hammond

Rough Draft of Results section only

This investigation utilized Norton's Communicator Style pre- and post-test self-reported scores of students in PSI and Traditional classrooms of the basic speech course to test the following three questions:

#1: What differences in communicator style result from differences in instructional method (PSI vs Traditional) in teaching the basic speech course?

#2: What differences in communicator style exist between gender in the basic course?

#3. What, if any, differences in communicator style result from an interaction between gender and instructional method in teaching the basic course?

Communicator Style Results

Utilizing Norton's (1983) Communicator Style Instrument, data analysis began with computation of means and standard deviations of pre-test and post-test scores for each of his ten dimensions. These dimensions were created by totaling the individual descriptors that constitute each dimension. Next,

coefficient alpha scores were computed to identify the reliabilities for each dimension. See Table 1.

Insert Table 1 about here

At the start of the semester, PSI and traditional students alike reported their communication to be most typified by friendliness. The next strongest communication dimension (receiving the highest score by summing sub-items comprising the dimension) for all students was attentiveness, followed by animation and then impression leaving communication. Not surprisingly, both PSI and traditional students reported their communication as least typical of a relaxed style. This pattern was consistent when looking at post-test scores. When examining the change in communication style over the course of the semester from pre- to post-test, it is not surprising that the greatest change was in the relaxed dimension. Strong, but slightly less change in descending order, was in attentiveness, dramatic presentation, and impression leaving communication.

Reliabilities for the ten communicator style dimensions were fairly consistent for both pre and post-tests. Though not as strong as would be ideal, they do reflect scores typical of this instrument in other research, and generated fairly reliable results.

These results were then used to answer the major and attendant minor questions important in this study. The major question was aimed at identifying the influence of instructional method on communicator style. The minor questions examined the influence of gender on

communicator style, as strongly suggested by prior research, and then the possible interaction of gender and instructional method on the change in communicator style over the course of a semester of basic speech.

Instructional Method

Means and standard deviations for pre-test and post-test scores for each of the ten dimensions which comprise communicator style were first computed. Then scores reflecting the change in each dimension over the course of the semester were computed by subtracting the pre-test score from the post-test score for each subject. Finally, the scores were divided by instructional method into two groups, the Personalized System of Instruction (PSI) or the self-contained traditional (Trad) classroom. Analysis of variance tests were then run to identify significant differences in instructional methods for pre-test scores, post-test scores, and change scores. These are reported in Table 2.

Insert Table 2 about here

No significant differences were found regarding communication style dimensions between instructional methods at the beginning of the semester. This indicates no significant difference in communicator style existed between groups prior to instruction. However, significant differences were revealed between instructional methods at the end of the semester. In general, all communication style dimensions were stronger at the end of the semester compared to the

beginning of the course for both PSI and Traditional groups, with the exception of openness. Post-test scores revealed instructional method groups to be significantly different at the P<.05 level in two communicator style dimensions at the end of the semester. Differences were in the degree of precision and animation in communication.

While all students increased in their communication precision, those in PSI classes reported themselves to be more precise in their communication compared to those in traditional classes (P<.045). Similarly, while animation increased with both instructional methods, post-tests revealed significantly more students in PSI classes reported stronger animated communication than did students in traditional classes (P<.036).

Examination of post-test scores only, however, included any prior existing differences between instructional method groups at the beginning of the semester. Prior differences in pre-test scores served to confound differences in post-test scores. Therefore, the better measurement to investigate the impact of instructional method on communicator style was the degree of change between pre- and post-test scores reported by the subjects.

When examining the change between pre-test and post-test self-reported scores for each communicator style dimension, only one significant difference was found between instructional method groups. Once again, while animation increased for all students, those in the PSI classrooms self-reported the greater increase in animated communication over the course of the class (P<.005).

One communication style dimension was reported to have decreased in traditional classes. This was the dimension of openness,

where students in traditional classrooms reported a decreased communicative openness from the pre-test to the post-test. However, this was only slight, not significant, nor meaningful.

Gender Differences

Because several researchers (i.e. Montgomery and Norton, 1981; Hansford and Hattie, 1987; Honeycutt et al., 1982; Hawkins et al., 1980) have identified gender to be significantly related to particular dimensions of communicator style, means and standard deviations on pre-test, post-test scores and their change over the course of the semester were computed based on gender. Analysis of variance tests were again run to identify significant differences between females and males. These are reported in Table 3.

Insert Table 3 about here

Significant differences between females and males at the beginning of the semester were reported for seven of the ten style dimensions. Based on pre-test scores, males were significantly more impression leaving, argumentative, precise, and dramatic in communication style compared to females. In contrast, females were significantly more friendly, animated, and open than males; and reported a slight but not significant trend toward more attentiveness.

Examining post-test scores which did not control for differences in pre-test scores, analysis of variance identified significant difference between males and females in nine of the ten dimensions. The same pattern of differences between females and males held true in post-test scores as in pre-test scores. In

addition, significant differences between males and females were found in relaxed and dominant communication styles. In both instances, male reported to be more relaxed and dominant than females. In post-test scores, only attentiveness was not found to be significantly different for females compared to males.

Post-test scores revealed the greatest significant style difference between mend and women was in animated communication ($P<.000$), with females reporting more animated communication activity then males. Three dimensions were found to be significantly different between men and women at the $P<.001$ level. These were friendliness, impression leaving communication, and precision. Females reported more friendly communicator style than males; while males reported stronger impression leaving communication and precise than females. Other differences included males indicating less openness than females but more argumentative, dramatic, relaxed and dominant communication. Basically, of the ten dimensions in Norton's construct, males self-reported higher scores in all except friendliness, attentiveness, animation, and openness.

Investigation of gender differences when controlling for pre-existing conditions prior to the course, both males and females reported an increase in each dimension, with the exception of openness, which slightly but not significantly reduced for females.

Examination of change over the semester revealed significant differences in communication style change between females and males ($P<.05$ level). In descending order based on the strength of change, these differences were in animation, impression leaving communication, and friendliness. While more animated and friendly across the course,

females also increased significantly more than males in animation and friendliness. Inversely, while males reported stronger impression leaving communication throughout the course, they also reported a greater increase in impression leaving communication compared to females.

Though not significant differences between genders, there were trends toward differences in the amount of change over the semester in four other dimensions. Females tended to become more relaxed, while males tended to become more argumentative, precise, and dominant in their communication. Though not significant, females reported a reduction in communication openness over the course of the semester. This reduction was slight and not meaningful, however.

Based on strong and consistent differences in communicator style dimensions for both men and women, an investigation for possible interactions between instructional method and gender was then undertaken.

Instructional Method and Gender Interaction

Based on results indicating a strong impact of gender and a present though limited impact of instructional method on communicator style, means and standard deviations of scores were computed for instructional method by gender. Then, analysis of variance tests were conducted to reveal significant interaction effects that may have been present between males and females within the PSI and traditional classes. Tests revealed only two significant interactions. These were in post-test scores for communication precision (see Table 4) and changes during the course of the semester regarding dramatic communication (see Table 5).

Insert Table 4 about here

While both males and females reported higher post-test scores for communicative precision than pre-test scores, males reported higher scores than females across instructional methods. However, most noteworthy was that males attending PSI sections had significantly higher precision post-test scores than males in traditional instructional sections, or females in either PSI or traditional classrooms ($P<.016$). In contract, females in traditional sections scored higher than females in PSI classrooms regarding communication precision.

Insert Table 5 about here

Scores based on the change in communicator style from pre to post-test revealed an interaction effect between instructional method and gender for dramatic communication ($P<.042$). Both females and males reported an increase in dramatic communication style across instructional methods. However, the greatest impact occurred for males in traditional sections. The next greatest change occurred for females in PSI.

Males in traditional classrooms reported the greatest increase in dramatic communication; while males in PSI classes reported the smallest increase in dramatic communication compared to the four possible groups. In comparison, females in PSI classes

increased less than males in traditional instruction, but more than females in traditional classes.

Summary of Results

In sum, communication style dimensions were strengthened for students in both PSI and traditional sections of the basic speech course over the semester. The instructional method employed influenced the amount of animation and precision in communication only, with PSI students self-reporting significantly more animation and precision at the end of the semester than students in traditional classrooms. Further, PSI students also increased in their animated communication style significantly more than traditional classroom students. However, as significant differences were found in development and change for only one of the ten dimensions in the communicator style construct, overall the impact of PSI compared to traditional instructional methods on communicator style was quite negligible. Both heightened elements of communicator style as defined by Norton.

Communicator style differences based on gender were identified in students in the basic course. Males and females entered the course with significant differences in seven of the ten dimensions, differing least in relaxed communicative elements. Further, men and women left the course with significant differences in scores for all but attentive communication, women being most friendly and men leaving strongest impressions. Greatest changes for both men and women were in increased relaxation in communication, appropriate for experience in the basic course. Significant differences between genders regarding change over the semester were in greater increases

for females in friendly and animated communication, and for impression leaving communication for males.

Two interactions between gender and instruction method were revealed. First, males were more precise than females in general, but males in PSI left the course with more precision than males in traditional basic courses. The second interaction involved dramatic communication. Males in traditional sections reported the greatest increase in dramatic communication, followed by females in PSI courses, then females in traditional course, with the least increase in dramatic communication occurring for males in PSI.

These results support conclusions regarding the strong influence of gender on communicator style, and the positive impact of basic course training on communicator style, but the negligible impact on communicator style made by the instructional method of teaching the basic speech course.

Conclusions

Table 1

Communicator Style Dimensions for Pre-Tests and Post-Tests

Means, Standard Deviations, and Reliabilities

		Pre-test	Post-test
Friendly:	mean	14.63	14.84
	s.d.	2.36	2.09
	coefficient alpha	.610	.519
Impression Leaving:	mean	13.46	13.98
	s.d.	2.66	2.74
	coefficient alpha	.824	.855
Relaxed:	mean	9.79	10.82
	s.d.	3.04	2.72
	coefficient alpha	.779	.689
Argumentative:	mean	12.81	13.14
	s.d.	3.53	3.15
	coefficient alpha	.777	.725
Attentiveness:	mean	13.74	14.37
	s.d.	2.24	2.49
	coefficient alpha	.529	.412

Precision:	mean	12.53	13.19
	s.d.	2.55	2.65
	coefficient alpha	.568	.639
Animated:	mean	13.56	14.05
	s.d.	2.61	2.62
	coefficient alpha	.580	.632
Dramatic:	mean	12.45	13.01
	s.d.	3.02	2.78
	coefficient alpha	.674	.655
Openness:	mean	11.42	11.40
	s.d.	3.21	3.12
	coefficient alpha	.724	.739
Dominant:	mean	11.43	11.83
	s.d.	3.13	2.92
	coefficient alpha	.793	.762

Approximate Pre-Test population= 330 & Post-test population= 276

Table 2

Communicator Style Dimensions by Instructional Method

Means and Standard Deviations

		Pre-test	Post-test	Change
Friendly:		P=.688	P=.143	P=.238
PSI	mean	14.68	15.02	.42
	s.d.	2.25	2.19	1.93
Trad.	mean	14.58	14.67	.23
	s.d.	2.47	1.98	2.03
Impression Leaving:		P=.907	P=.843	P=.944
PSI	mean	13.48	14.04	.61
	s.d.	2.83	2.88	2.30
Trad.	mean	13.44	13.92	.58
	s.d.	2.52	2.62	2.43
Relaxed:		P=.825	P=.119	P=.125
PSI	mean	9.83	11.04	1.23
	s.d.	3.05	2.86	2.67
Trad.	mean	9.75	10.61	.89
	s.d.	3.03	2.57	2.63
Argumentative:		P=.702	P=.304	P=.370
PSI	mean	12.74	13.34	.57

	s.d.	3.66	3.24	2.84
Trad.	mean	12.88	12.95	.30
	s.d.	3.41	3.05	2.68
Attentiveness:		P=.930	P=.931	P=.902
PSI	mean	13.75	14.35	.74
	s.d.	2.22	2.27	2.10
Trad.	mean	13.73	14.39	.79
	s.d.	2.27	2.69	2.60
Precision:		P=.361	P=.045*	P=.137
PSI	mean	12.67	13.46	.71
	s.d.	2.73	2.71	2.14
Trad.	mean	12.41	12.94	.29
	s.d.	2.37	2.58	2.03
Animated:		P=.892	P=.036*	**P=.005****
PSI	mean	13.58	14.35	**.87**
	s.d.	2.60	2.65	2.25
Trad.	mean	13.54	13.77	**.20**
	s.d.	2.62	2.57	2.21
Dramatic:		P=.420	P=.758	P=.609
PSI	mean	12.58	13.12	.53
	s.d.	3.08	2.86	2.62
Trad.	mean	12.32	12.91	.75
	s.d.	2.97	2.71	2.49

Openness:			P=.070	P=.791	P=.392
	PSI	mean	11.09	11.29	.42
		s.d.	2.92	3.18	2.92
	Trad.	mean	11.73	11.50	-.19
		s.d.	3.44	3.07	2.91
Dominant:			P=.460	P=.889	P=.619
	PSI	mean	11.30	11.76	.39
		s.d.	3.15	3.01	2.36
	Trad.	mean	11.55	11.89	.50
		s.d.	3.10	2.84	2.26

---

*P<.05; **P<.01 PSI population=167, Traditional population=180

Table 3

Communicator Style Dimensions by Gender

Means and Standard Deviations

		Pre-test	Post-test	Change
Friendly:		P=.007**	P=.001**	P=.028*
	Female mean	14.93	15.17	.34
	s.d.	2.50	2.14	2.14
	Male mean	14.22	14.35	.26
	s.d.	2.14	1.93	1.73
Impression Leaving:		P=.004**	P=.001**	P=.019*
	Female mean	13.12	13.51	.43
	s.d.	2.63	2.63	2.04
	Male mean	13.97	14.61	.78
	s.d.	2.62	2.81	2.72
Relaxed:		P=.204	P=.040*	P=.090
	Female mean	9.63	10.51	1.90
	s.d.	3.20	2.69	2.65
	Males mean	10.06	11.20	1.25
	s.d.	2.77	2.70	2.65
Argumentative:		P=.028*	P=.022*	P=.078

	Female	mean	12.45	12.76	.30
		s.d.	3.55	3.21	2.54
	Male	mean	13.31	13.66	.58
		s.d.	3.45	3.02	3.02
Attentiveness:			P=.090	P=.274	P=.976
	Female	mean	13.92	14.49	.65
		s.d.	2.30	2.10	1.95
	Male	mean	13.49	14.16	.91
		s.d.	2.16	2.93	2.83
Precision:			P=.009**	P=.001**	P=.063
	Female	mean	12.24	12.73	.56
		s.d.	2.68	2.73	2.11
	Male	mean	12.97	13.78	.72
		s.d.	2.29	2.43	2.22
Animated:			P=.002**	P=.000**	**P=.015***
	Female	mean	13.96	14.61	**.59**
		s.d.	2.54	2.55	2.13
	Male	mean	13.05	13.26	**.44**
		s.d.	2.61	2.55	2.42
Dramatic:			P=.016*	P=.033*	P=.178
	Female	mean	12.12	12.69	.58
		s.d.	3.09	2.84	2.60
	Male	mean	12.92	13.43	.68

		s.d.	2.88	2.66	2.47
			Openness:		P=.001** P=.018*
P=.670					
	Female	mean	11.90	11.78	-.10
		s.d.	3.36	3.38	3.14
	Male	mean	10.77	10.86	.40
		s.d.	2.90	2.70	2.59
Dominant:			P=.102	P=.024*	P=.082
	Female	mean	11.21	11.48	.32
		s.d.	3.24	2.96	2.33
	Male	mean	11.77	12.27	.61
		s.d.	2.94	2.80	2.29

---

*P<.05; **P<.01 Female population=196; Male population=146

Table 4

Instructional Method by Gender for

Post-test Scores in Communication Precision

Means and Standard Deviations

		Gender		
		Female	Male	
Instructional Method:				P<.016*
PSI	mean	12.66	14.48	
	s.d.	2.71	2.39	
Trad.	mean	12.79	13.07	
	s.d.	2.77	2.28	

---

*P<.05; **P<.01 Female/PSI=93; Female/Traditional=102; Male/PSI=71; Male/Traditional=75.

Table 5

Instructional Method by Gender for

Changes in Dramatic Communication

Means and Standard Deviations

		Gender		
		Female	Male	
Instructional Method:				P<.042*
PSI	mean	.74	.18	
	s.d.	2.71	2.41	
Trad.	mean	.43	1.19	
	s.d.	2.49	2.44	

*P<.05; **P<.01 Female/PSI=93; Female/Traditional=102; Male/PSI=71; Male/Traditional=75.

Developing Rhetorical Sensitivity:

Do Pedagogical Methods Make a Difference?

Doug Brenner

Cindy Stampe

In seeking to investigate the possible effects of the "traditional" and PSI approaches to teaching the basic (SPCM 101) speech course at the University of South Dakota, we noted some striking differences. PSI sections required their students to give speeches to smaller audiences (typically eight) as opposed to the typical audience of approximately twenty-four in traditional sections. Moreover, students in PSI met less frequently, given the self-paced nature of the PSI approach. Traditional sections, however, met on a frequent basis with the opportunity for students to interact more frequently with their teachers and each other. We therefore wondered if these differences would affect students' attitudes toward communication, towards audiences, and towards themselves. One means of measuring attitudes toward communication is with the RHETSEN instrument (explained below). We formulated the following research question:

Would the differences between PSI and the traditional 101 sections and their instructional formats and methods lead to differences in a specific outcome such as rhetorical sensitivity, as measured by the RHETSEN instrument?

A survey of the literature revealed no study previously examined whether these two approaches to instruction affect students' rhetorical sensitivity scores differently. Hart,

Carlson, & Eadie, (1980), in their development and testing of the RHETSEN instrument, did not seek to determine if instruction in communication would affect RHETSEN scores. They posed two unanswered questions (at that time) indirectly related to this study: "Do our attitudes toward communication change over time or are they 'set' relatively early in life?" and "Should teachers seek to change attitudes toward communication or concentrate instead on altering communicative behaviors?" (1980, p. 22).

Ting-Toomey's (1988) study of rhetorical sensitivity style in three cultures suggested that American students' preference for an indirect (more sensitive style) may have been influenced by their enrollment in communication classes, therefore predisposing them "toward the 'positive' ends of rhetorical sensitivity communication" (p. 34). Unfortunately, when the test was given (i.e., toward the beginning or the end of the semester) is not indicated. In addition, no post-test was administered. Schoen (1981) although not studying RHETSEN differences between traditional and PSI sections, reported that pretest/post-test changes revealed that a basic speech communication course increased both rhetorical and audience sensitivity scores.

The Rhetorical Sensitivity Scale was an operationalization of the concept of rhetorical sensitivity initiated by Hart & Burks in 1972, and developed and refined by others, particularly Hart, Carlson & Eadie in 1980, to measure attitudes toward message adaptation--the way one thinks about self, others, and situations. The final version of the instrument suggested that attitudes toward communication could be described in terms of

three general orientations. First, communicators could be Rhetorically Sensitive (RS), described as adjusting their messages (what and how something is said) based upon their needs and others' in particular situations and said to be influenced by certain participatory attitudes such as inventional complexity, and interaction consciousness.

Noble Selves (NS) can be differentiated by rigid, inflexible, nonadaptive attitudes, communicating little concern for others or the situation while telling people what they think. Third, other communicators, named Rhetorical Reflectors (RR), can possess attitudes disposing them to reflect what they believe others want to hear, thus effectively precluding the role of self while focusing on the other (See Hart, Carlson, & Eadie; Deetz & Stevenson, 1986, p. 33-36; & Ward, Bluman, & Danria, 1982). It was acknowledged that communicators possess and enact each of these three types of attitudes in various situations, although most have tendencies toward one particular type.

Since the publication of the RHETSEN instrument in 1980, various researchers have sought to explore the ways in which these orientations show up in various populations or to explore the ways in which these attitudes actually influence behaviors (always a tenuous relationship). Ward (1981) found a positive relationship between supervisor's rhetorical sensitivity and their subordinates' satisfaction with them, but no relationship with managers' satisfaction with the supervisors' rhetorical sensitivity and their performance. Moreover, it was discovered that rhetorical sensitivity was not useful in all organizational

situations, a finding perhaps echoed by Cahn and Shulman (1980) in their study of a military organization (sergeants were higher in NS than officers and enlisted men, but lower in RR). RS was found to increase in rank across groups. Pearson (1981a; 1981b) discovered an inverse relationship between rhetorical sensitivity and self-disclosure, with RS individuals not changing their levels of self-disclosure despite differences in settings or length of relationships. Millar and Newton (1984), exploring nonverbal decoding ability, communication apprehension and rhetorical sensitivity, reaffirmed that RRs were most likely to be females, with women better at decoding nonverbal cues than men and found that rhetorically sensitive men were better decoders of nonverbal cues than men generally. In addition, they found that RSs tend to be more apprehensive of communication encounters (with RRs and NSs not particularly apprehensive). More significantly, perhaps, they indicate that women's superior ability at decoding nonverbal cues crosses all the rhetorical types, effectively blurring the distinction between the types.

Eadie's and Powell's research (1986) indicates that orientations toward communication influence the ways in which people perceive persuasive situations and the persuasive strategies chosen. RSs were found to perceive a greater range of persuasive communicative options and use higher-order strategies given the failure of more direct approaches. NSs were found to have little flexibility in their repertoire of strategies; RRs were found to be tentative, often confused and incoherent persuaders. As they note, "We identified for the first time systematic behavioral

differences in and among persons holding RS, NS, and RR orientations. We found that these differences were cross-situational in nature" (p. 21).

Improved rhetorical sensitivity scores, then, may signal students' heightened awareness of the importance of considering the audience in public speaking in addition to more interpersonal situations (see Schoen, 1981), as well as signal a variety of other possible communicative skills, e.g., nonverbal decoding ability, persuasiveness, moderate self-disclosure, and so on. These studies suggest examining whether different formats of communication instruction affect attitudes toward communication (and possibly behaviors) differently. If attitudes or orientations toward communication influence communication, then differences in RHETSEN scores may signal some troubling areas, i.e., if students keep or strengthen noble self or rhetorical reflector attitudes.

Results

In general, the results reveal little significant differences between the PSI and traditional sections' RHETSEN scores (See TABLE 1). There were significant changes in the Noble Self (NS) and Rhetorical Sensitivity (RS) scores for both methods (significant beyond the p=.01 level), and for the Rhetorical Reflector (RR) scores at the p=.05 level. Statistical tests (e.g., the Bartlett test for homogeneity of group variances)

revealed no significant differences in the NS, RR, and RS scores for both sections. The results show students in both PSI and traditional 101 sections became more rhetorically sensitive. In addition, students in both formats who initially scored higher as rhetorical reflectors or as noble selves generally showed the most change in the direction of rhetorical sensitivity (statistics not reported in this study). The pretest and post-test means for both methods are above the national average of 30.8 reported by Hart, Carlson, & Eadie in 1980 (p. 8)--with the two methods' means averaged to be 35.01, consistent with the finding that rural/suburban populations tend to rank higher in rhetorical sensitivity.

Whether these changes are enduring, if attitudes actually change communication behaviors, or if changes in communication behaviors lead to changes in attitudes, is not determined. This study suggests that in spite of the differences between PSI and traditional formats, they are producing similar results in terms of RHETSEN scores. This finding may further support research showing PSI-based formats producing educational outcomes similar to more traditional methods of teaching. If RHETSEN is a significant indicator of orientations towards self and others and towards audiences and communication, and if rhetorical sensitivity enhances communication, then we may continue to be more confident about PSI systems of instruction.

The degree of similar changes in both sections (even though PSI has significantly more upperclassmen and the traditional sections significantly more freshmen), is interesting (See TABLE

2). The results may further indicate that age or class level contributes less to the changes in the RHETSEN scores than instruction in communication does (or the demands placed upon students to alter their behaviors in communication classes). These results replicate Schoen's study (1981) that communication classes can alter attitudes toward communication.

Conclusions

Those who work with the Basic Course may ponder some of the implications of working with the RHETSEN scale and its concepts. It may be desirable to give the RHETSEN test to students, preferably at the beginning of the semester, to identify students (particularly the stronger types of RRs or NSs), to help them identify the possible communication problems they may have and to develop an expanded repertoire of effective behaviors. Some counsel and discussion could be generated in communication classes about the consequences of each orientation--both positive and negative. Certainly, the instrument could be used to spark interest in the study of communication and to show its inherent difficulties or complexities. For example, is it even desirable for managers to be rhetorically sensitive? When, in light of the attention given to the Japanese model of management, should they be Rhetorical Reflectors or Noble Selves? When should military officers be rhetorically sensitive or not, in what situations, with what consequences? When is being a Rhetorical Reflector desirable? When is it not desirable?

In addition, it remains to be determined what is responsible for the changes in the communication classes (or what produces

the most change). Some of the change is probably due to the emphasis upon audience analysis and adaptation, but other units such as listening, small group communication, interviewing, interpersonal communication, nonverbal, etc., could also contribute. Researchers could investigate the effects of these units upon RHETSEN scores or determine the differences between the basic course and other communication courses (see Schoen, 1981).

In addition, more research could be undertaken to determine how RHETSEN affects speech-making and evaluation of the speeches. The "pure" rhetorical types of speeches could be videotaped and analyzed to determine the effects that orientations toward communication have upon the actual communication process in the classroom.

Finally, more research needs to be undertaken to refine our understanding of the attitudes people take toward communication. Eadie and Powell (1986) ask:

> Are there really three coherent communication ideologies which individuals either identify with or reject, or do people operate more on the basis of a set of communicative maxims, some of which may conflict with each other" (p. 20-21).

These steps have been taken by Barbara O'Keefe (1988), but much obviously remains to be learned about the complex ways in which individuals make choices about content and process and interact in a variety of complex socio-politico-cultural situations.

Cognitive Complexity and the Basic Course:
A Differential Study in Student Development

Cathy Bast

Mari Peters

The concept of cognitive complexity has been the focus of attention from communication researchers during the last two decades. Complexity is often studied as it relates to speakers' competence, persuasiveness, social perspective-taking abilities, and overall listener adapted communication skills (Hale & Delia, 1976; Delia & Clark, 1977; Ritter, 1979; O'Keefe & Delia, 1979; Delia, Clark, & Switzer, 1979; Hale, 1980, 1982; Sypher & Sypher, 1983; Rubin & Henzl, 1984; Beatty & Payne, 1984a). Other researchers have focused on androgyny (McMahan & Stacks, 1984); receiver apprehension (Beatty & Payne, 1981); impression formation (Applegate, 1982); listening comprehension (Beatty & Payne, 1984); use of comforting strategies (Burleson, 1984; Samter & Burleson, 1984); written communication ability (Sypher, Witt, & Sypher, 1986); and the upward mobility of communicators within organizations (Sypher & Zorn, 1986).

The concept of cognitive complexity can be traced to George A. Kelly's research on strategic communication, resulting in his theory of personal constructs (1955). Kelly wrote that

individuals rely on sets of personal dimensions, or constructs, to create an understanding of social situations in their effort to predict and control events within any given situation.

Jean Piaget (1970) and Heinz Werner (1957) were the first to develop the a more formal conceptualization of "cognitive complexity". Both defined the concept as an individual's ability to make sense of an event, ranging from relative simplicity to relative complexity. The factor that determined the level of complexity was the number and type of constructs used in creating an impression and effectively tailoring a message to the situation.

Walter Crockett's research on psychological development expanded the relationship between the number and type of constructs and level of cognitive complexity, as well as to devise methods of evaluating complexity. Crockett explained (1965) that complex, mature individuals are able to perceive, store, and recall a relatively large number of "elements", or ideas, information, beliefs, opinions, experiences, and situational variables. This information is organized in a relational and hierarchical order. Relational organization may include such factors as "similarity, temporal or physical contiguity, or logical or psychological implication" (p. 48). Crockett further distinguished between interpersonal constructs, information ordered and recalled based on others' appearance or behavior, and cognitive constructs, information and attributes based on complex relationships between mental constructs. According to Crockett, the cognitive processes are similar for

all domains, regardless of content (p. 48). A complex individual is described as able to closely differentiate between people, contexts, situations, and experiences and choose to act in an appropriate and effective way. They use a number of constructs, including non-concrete constructs, which tend to be highly integrated with each other. The less-than-complex individual is described as using a limited number of constructs that tend to be of concrete in nature and are only loosely integrated together.

Developing cognitive complexity is part of the natural maturation process. Researchers have reported that as children grow older, their arguments increase in number and their strategies increase in sophistication (O'Keefe & Delia, 1979; Clark & Delia, 1976; Burleson, 1982, 1984). Adolescents become more cognitively complex as they progress through high school (Ritter, 1979). The progress in maturation allows an individual to shift from egocentrism to perspectivism, in which diverse aspects of objects or social situations are simultaneously taken into account (Looft, 1972).

As individuals mature and grow in complexity a repertoire of communication skills develop that would lead to message effectiveness. "As communicators develop the capacity to more effectively conceptualize the subjective perspectives and psychological characteristics of their listeners, they should be better able to produce listener-adapted persuasive strategies" (O'Keefe & Delia, 1979, 231).

Cognitive Complexity was included in this Basic Course study to evaluate the impact of the Fundamentals of Speech class on

cognitive complexity. Specifically,

R1: What changes in cognitive complexity scores result when pre-test and post-test scores are compared?

R2: Do the cognitive complexity scores differ significantly between "PSI" and "traditional" methods of teaching?

R3: Do the scores increase overall as a result of completing the basic course, as predicted?

Theory supports an expectation that cognitive complexity scores would increase as a result of completing the basic Speech course, where basic communication skills in public presentations, small group interaction, and interpersonal communication are discussed. Theory and research comparing PSI and traditional methods of instruction has not included cognitive complexity as a variable.

Method

Students were required to purchase reading packets for the basic course. Contents of the packets for the traditional sections were the same, and the PSI packets were the same, but the packets for the PSI and traditional classes were different. All student reading packets included two copies of all research instruments. The Role Categorization Questionnaire (RCQ) was included and titled as Instrument #4. For the pre-test, students

were asked to describe a person their own age that they admired and did not admire (two different people). Most questionnaires were completed during a class period the first week of the semester and would qualify as a timed exercise. The post-test questionnaires asked students to describe someone their own age that they liked and disliked (two different people). The post-tests were completed outside of class and returned to the instructor during a class period the last two weeks of the semester.

Graduate Teaching Assistants and faculty members were trained to code the instruments during a graduate student/faculty exchange meeting. The decision rules used for differentiation coding are available in Mary Smith's Research Methods in Communication (1987, p. ***). Each class was coded by the section's teaching assistant and at least two other people. Final complexity scores were attained by totaling the two scores for each case (admire/not admire or like/dislike) and averaging the two most similar scores. One coder's assessment of complexity was dropped in each case for being "deviant", the most unlike the other two coders' scores. Coder reliability ranged from .903 to .963. Total scores for each case, each class/section of the course, and for each type of instruction resulted. Cases that did not complete both the pre-test and post-test were eliminated from this portion of the study.

Discussion

The results did not prove our expectations or predictions and, if taken at face value, could alarm department and

university evaluators.

R1: What changes in cognitive complexity scores result when pre-test and post-test scores are compared?

Overall, complexity scores decreased from the pre-test to the post-test for both methods of instruction. As a result of one semester of coursework and university experience between the pre-test and post-test, scores should have increased. The coders and method of coding for both tests remained the same. The difference between like and admire is not different enough to account for the lower scores. And the students were not limited by time to complete the post-test questionnaires. Higher scores generally result when the questionnaire completion is not limited (O'Keefe, Sheperd, & Streeter, 1982). This was not the case in our study.

R2: Do the cognitive complexity scores differ significantly between "PSI" and "traditional" methods of teaching?

The difference is not significant. Some interpretations of this data may be interesting, however. First, by looking at the numbers, the students in the traditional sections of the basic course had a net result that was lower than students in PSI sections (3.33 drop for traditional vs. 1.35 drop for PSI). Second, less complex individuals prefer the PSI method of instruction. This contradicts a basic assumption, that a self-paced method of learning and an older population of student (more

sophomores, juniors, and "nontraditional" students are enrolled in PSI than the self-contained lecture method of instruction) would have lower complexity scores than incoming freshmen and students late in registering (typical students in traditional sections of the basic course).

	PSI		Traditional	
	pre	post	pre	post
N	134	113	147	113
Minimum	4.00	3.50	3.00	2.00
Maximum	39.50	32.50	36.00	40.00
Mean	13.22	11.87	15.88	12.55
SD	5.30	5.97	6.32	6.05

Neither of these inferences seem realistic. Some possible reasons for the unexpected difference in scores follow in the next section.

R3: Do the scores increase overall as a result of completing the basic course, as predicted?

Surprisingly, no. The assumptions and inferences cited in the discussion of R1 and R2 led us to expect some increase, however slight, in post-test cognitive complexity scores. Some explanations can be made for the results of this study. First, the responses could be seen as students' efforts to be concise and clear. This being the case, then another method of evaluating the students' responses would be necessary (since differentiation required the total number of constructs to be counted as the complexity score). Or instead of expecting an increase in score to signify an increase in complexity, a decrease in total score would indicate a growing level of complexity.

This argument is meant in a humorous light, but the questioning of the method of coding differentiation and the extent to which loquacity, or amount of response, rather than cognitive processing, is present in our publications. Delia (1978) found a moderate correlation between verbosity and complexity. Powers, Jordan, & Street (1979) concluded that an unclear distinction is made between cognitive complexity and the verbal behavior used to measure complexity. Rubin & Henzl (1984) found correlations between verbal ability and cognitive complexity. Beatty & Payne (1984) found the Role Category Questionnaire correlated significantly with complexity scores, upholding the complexity-verbosity concern. They concluded that number of words used to describe others or other's perceptions may demonstrate a willingness to write more than the subjects'

constructions of reality. O'Keefe and Sypher (1980) have pointed out the "phrase 'cognitive complexity' may have been badly chosen" (73) when describing the number of constructs in a person's repertoire.

A second reason for these surprising results was offered by a thoughtful graduate student while working with this data. He thought that the lower post-test scores indicated a sense of "maturity" as a result of a semester in school. (His actual word was cynicism.) Students are less eager to please the instructor by the end of the semester. They are tired, less diligent and complete in work that has no reward incentive (i.e. effect on final grade), and are unsure of the significance of the instrument. After a cost/reward balance, energy is devoted to other things.

And a third explanation could be that the instrument did not measure what we expected, we don't know what it did measure, and we don't know how to assess cognitive complexity as a result of completing the basic course, using the instrument that we used. Enough research disputes the differentiation coding for the Role Category Questionnaire to question if it worked in this setting and on this population. Other methods of assessing cognitive complexity exist but are more time-consuming and labor intensive (i.e. hierarchical evaluations, interviews, etc.).

This study was initiated to discover if one method of instruction was significantly better than the other. No recommendation for either method can be made as a result of the cognitive complexity scores in this study. For future research,

other methods of evaluation should be used. If nothing else, the results of this part of the basic course assessment gives us something to smile about and shake our heads.

Differential Impacts

of Traditional and PSI Basic Speech Courses

on Communication Anxieties

James J. Lewis

Pete Obermeier

Although the subject of much study, communication apprehension continues to be a major problem for many people. "Because communication apprehension serves as such a strong inhibitor of effective communication, many people believe that it is the single, most significant barrier to effective communication in modern society." (Richmond, & McCroskey, 1985). For many people whose careers will require effective communication, the Fundamentals of Speech Communication course they take in college will be the only formal training they receive to deal with this anxiety and its results.

As more University departments have become aware of the centrality of communication effectiveness to their student's future, the demand for the Fundamentals of Speech Communication course has grown. In an effort to meet this increased demand and to retain the small class size necessary for individual and interactive instruction (Gibson, Hanna, & Huddleston, 1985 p. 282), some schools have begun to utilize variations of the Personalized System of Instruction (PSI). While the PSI model has

been intensively used to teach the basic course in the scientific disciplines (Boylan, 1980) it has only recently begun to be adapted to a performance course, such as Fundamentals of Speech Communication.

Although some studies suggest that the PSI method has shown itself to be superior to both the lecture/recitation (Gray, Buerkel-Rothfuss, & Yerby, 1986) and the self-contained formats (Gray, & Others, 1988) in reducing communication apprehension, there is some question as to whether general communication apprehension can be reduced through speech courses. Richmond and McCroskey (1985) suggest that "Improved skills can only be expected to result in areas in which specific skills training is provided. By this we mean that skills training does not generalize...As a result, we cannot expect any generalized reduction in communication apprehension to be produced by skills training either." Miller (1984) states his "conviction that it is futile to hope for treatment progress within the evaluative confines of the typical communication classroom."

While the effects of a Speech Course on communication apprehension are not resolved by past literature, past research suggests other variables that might confound the impact of the classroom on communication anxiety. The role gender plays in communication apprehension may be one such variable. McCroskey, Simpson & Richmond (1982) agreed with Talley (1979) and Zimbardo (1977) that the levels of general communication apprehension appear to be the same in males and females, but in other studies, "females have been found to be slightly more apprehensive in

formal communication contexts--meetings and public speaking, while males have been found to be more apprehensive in interpersonal contexts (Greenblatt, Hasenauer, & Freimuth, 1980) (Pearson 1985, p. 325) (Pearson & Nelson, 1981) (Barker, 1986). [all this is from Gray, Nov. 1987]

While the literature review revealed inconclusive and occasionally contradictory results concerning the possible role of gender differences in basic speech communication courses regarding performance attitudes, some studies of the impact of the basic course have shown that "females will show greater signs of communication apprehension than will males at the start of the course but will change more significantly in the direction of reduced apprehension than will males." (Gray & Others Nov. 1987)

There is some material suggesting that the development of the communication apprehension problems are different for males and females in the K-12 environment (Lewis & Moller, 1987). Other research findings have implied a possible interaction between communication instruction and communication apprehension. In particular, while differences in overall communication apprehension seem to be slight, Allen (November, 1987) found that females tend to be more apprehensive in the context of public speaking and in meetings, a description which applies well to much of the speech classroom activities. These authors went on to note that "Males indicated that they were more independent and more avoidant in the classroom than were females. Males and females did differ in their use of dependent, collaborative, competitive, and participant learning styles." If males and females differ in the

amount and/or type of communication anxiety at the beginning of the course, react differentially to the course because of these differences in anxiety, and respond differentially to different teaching strategies, then an interaction between the method of a speech course and gender as they result in modification of communication anxiety seems reasonable.

The difference in the anxiety reducing effect between PSI and Traditional sections of the Introductory Speech Communication course was examined in a study by Gray, Buerkel-Rothfuss & Yerby, (1986), who found that apprehension reduction was greater in PSI sections than in traditional sections. Another study, confirming these results, examined these variables and included gender as a covariate, Gray (1987) . Gender differences were close to being, but were not, significantly different. The interaction between method and gender was not given for this study, although the resulted were reported as being non-significant.

Although the initial investigations (Gray above) suggest that PSI is more effective in reducing communication apprehension than traditional methods, little research has been done. In addition, the application of the PSI method to a performance course is not only new, but the variety of formats used indicate that more research is necessary to discover the methods that will benefit the greatest number of students.

Therefore, this study proposed four hypotheses:

H1: Students will experience reduced communication apprehension while taking the Fundamentals of Communication

course.

H2: The method of instruction will have a differential effect on the amount of change in the various types of communication apprehension in the students.

H3: Gender will have a differential effect on the amount of change in the various types of communication apprehension in the students.

H4: The interaction between gender and instructional method will have a differential effect on the amount of change in the various types of communication apprehension in the students.

METHOD

The PRCA-24 instrument (McCroskey 1989) was administered to all students in the PSI and Traditional sections of the Fundamentals of Communication course on the first day of class, and again during the last two weeks of the semester. The pretest was filled out in class and the posttest was completed outside of the classroom. All instruments were coded to allow matching of the pretest with the posttest and with the demographics collected during the pretest, including gender and the instructional method.

RESULTS

Each instrument was scored according to McCroskey (1989) for the four different context's subscales and the subscales were summed for the overall score. If a subject left an item involved in a subscale blank, then that score was blank. Therefore,

although 345 students completed the pretest, only slightly more than 320 pretest subscales and 302 of the overall communication apprehension scores were usable after the pretest, since the overall score involves all the items on the instrument and a missing score on any subscale would result in dropping a subject's overall score.

Because of instruments not being completely filled out, course drops, and some student unwillingness to participate in the research project, the attrition for the posttest was even greater. The study was able to utilize about 260 subscale scores and 239 overall communication apprehension scores for analysis.

Students enrolled in the two instructional methods were compared by computing pretest means for each of the subscales and the communication apprehension total. The pretest means for each method were then compared using an independent measures t test, using the Bonferoni correction for multiple tests. These means and comparisons are presented in Table 1. Only the group anxiety pretest scores differed significantly between the PSI and the Traditional students, with the PSI students reporting more anxiety. Examination of the pretest means also shows that, even though the differences were not significant, average anxiety scores on all other variables were higher for students in PSI sections than in Traditional sections. This indicates that students signing up for PSI sections may not be equivalent to students signing up for the Traditional sections. Selection processes may be influencing which students enroll in which form of the course.

We then asked if apprehension scores were influenced during the semester by comparing pretest scores with posttest scores. These comparisons are also presented in Table 1. Paired comparison t tests show that, for both types of sections and for all the variables measured (with the one exception of Dyadic communication apprehension), there was a significant reduction in the anxiety scores. In general, the answer to H1 is that speech courses are effective in reducing speech anxiety of students as measured by the PRCA. Only dyadic anxiety for students in the traditional sections did not show a significant change, although the average post test score was slightly lower than the pretest score.

Because anxiety was declining, and since the groups of students were not clearly equivalent to each other, change scores were computed for each student on each of the five communication apprehension variables by subtracting the post test score from the pretest score. A change score was counted as missing if any item involved in the measure of the pretest score or the post test score was missing. Therefore about 240 change scores were available for the anxiety subscales and 212 were available for analyzing change in overall communication apprehension. These change scores were used to determine the influence of the instructional method and gender on anxiety reduction during the course. Analysis of covariance was used to determine influence, with the 5 anxiety variables being dependent variables, and type of instruction, gender, and gender by instruction interaction being independent variables. The corresponding pretest anxiety

score was used as a covariate, both to control for pretest differences between PSI students and Traditional students, and because of the belief that the change of anxiety in a student may well be a function of the anxiety that the student started with.

Results of these analyses are presented in table 2. This table shows that the independent variables were significantly related to all dependent variables except meeting anxiety. The following discussion therefore drops meeting anxiety and pertains only to the other four dependent anxiety measures.

Each of the other dependent measures had over twenty five percent of their variance explained by the ANOVA model (the multiple R squared, see table 2.) The pretest covariate was responsible for explaining a substantial part of the explained variance, and was highly significant. No significant main effect for method appeared. Gender was a significant main effect for Dyadic anxiety, and also (perhaps therefore) was significant for overall anxiety change. One clear finding from the data was that an interaction effect involving gender and method was significantly influencing the measures of anxiety change. Yet while the interaction effect clearly stood out, it was only a small influence on the change in the anxiety scores of the subjects. For the change in overall anxiety, and for the change in group anxiety, the interaction accounted for slightly more than two percent of the variance. For the change variables of public communication anxiety and dyadic communication anxiety, it accounted for even less. So while the variables stand out clearly in the results, by themselves they do not go a long way toward determin-

ing the change in the anxiety scores.

To interpret the nature of the interaction effect that was occurring, the average amount of change for each gender in each method of instruction was computed . These averages are presented in table 3. A negative average in this table represents the amount of decrease in an anxiety score. The overall anxiety change score appears higher than the other changes because it includes all 24 test items. The subscale scores are only a quarter as large as the overall score because each sub scale includes only six items. In those instances where a change score is positive, the anxiety score has increased.

Table 3 shows that females consistently showed more anxiety reduction in Traditional sections than they did in PSI sections, but that the difference was not a large one. With one exception, females in the Traditional sections showed more anxiety reduction than any other group.

While females showed more reduction in Traditional sections, males showed just the opposite. Not only did males show more anxiety reduction in PSI sections, than in Traditional sections, but the differences were large ones. On the average, for group anxiety and dyadic anxiety, males in Traditional sections actually increased in anxiety over the course of the semester. In the Traditional sections females reported the greatest amount of change, while in PSI sections males showed greater anxiety reduction.

These differences are presented in Figure 1 for overall anxiety. This figure shows that the interaction effect comes

from males in the Traditional sections showing very little anxiety change, while all other method by gender combinations show decreasing anxiety scores.

Since the interaction test was derived from a test that included the pre-test anxiety score as a covariate, the amount of overall change was plotted for each student against the pretest score of the student. These plots were constructed for each combination of gender and method, and a line was fit to the points using a locally weighted scatter plot smoothing algorithm (Cleveland, 1981; Wilkinson, 1988). This technique utilizes half the points in the chart in each running window to construct a smooth line to represent the relationship in the graph. These plots are given in figure 2.

Each point on these plots represents one student. The line represents the relationship between the amount of change in anxiety and the level of anxiety reported on the pretest. Where a point or line falls in the lower half of the plot, it indicates a negative change or a lessening of anxiety. Point or lines in the upper half of the plot represent a positive change or an increase in anxiety. Points falling in the middle on the 0 point represent no change. The left and right location of a point or line represents the pretest score of the student. The higher the pretest anxiety score of the student, the farther to the right that student is plotted.

The lines plotted for the PSI sections show a bend or elbow that represents a complex function. When students show high initial anxiety, they show much anxiety reduction. The less the

amount of anxiety, the less the anxiety reduction. This linear relationship seems to hold when pretest scores showed high or moderate initial anxiety, but disappears when students showed moderate to little initial anxiety. In PSI sections, students starting with low to moderate anxiety, seem to show no systematic change in anxiety level.

Students in the traditional sections, on the other hand, show much more of a linear relationship. The amount of change still seems to be a function of the initial reported anxiety, but the nature of the relationship has changed. While initially anxious students become less anxious, students initially low in anxiety develop more anxiety. And the lower the initial anxiety, the greater is the increase in anxiety at the end of the course.

Looking at the differences in average change leads not only to a consideration of the differences that occur between males and females in Traditional and PSI sections, but also to consideration of the influence of initial subject differences within each section. The method used does not have a uniform effect on each subject, but differs greatly depending on the initial anxiety level of the incoming students. PSI seems to deal only with high initial anxiety students, and reduces the anxiety proportional to the initial anxiety. Males and females react very similarly in these sections.

In Traditional sections, the anxiety of low anxiety students increases while the anxiety of high anxiety students goes down. Males seem to be reacting much differently from females in these sections. A predominant effect on these males is increasing

anxiety.

DISCUSSION

While the present study yields some interesting results, caution must be used in generalizing these results to other programs. The University of South Dakota comprises a unique set of regional students, being taught the Fundamentals of Communication by methods that may not compare to other settings. In addition, the groups in the two methods of instruction in this study were not equivalent. During the advising period in the spring, sophomores and upperclassmen self-selected the PSI, and comprised over 90 percent of the students in that format, while over 50 percent of the Traditional students were freshmen. Besides any effects due to self-selection, the fact that the freshmen were beginning their first semester of college may also have an impact.

Looking at the results in light of the four hypotheses shows:

That for H1, overall, communication apprehension decreased, but between PSI and Traditional no overall differences were found between the methods of instruction.

For H2, no main effects were found for method of instruction.

In the case of H3, effects were found for gender in Dyadic and Overall contexts, but were not significant for Public and Group contexts.

Although no discussion of H4 was discovered in the

literature, the interaction between gender and instructional method provided the most interesting results. As shown by the scatterplots, females fared somewhat better in Traditional sections than in PSI, while males improved much more in the PSI than they did in the Traditional.

Comparison of these results with the Gray (1987) results is most instructive. Of all the studies reviewed in the literature, this was the one study that tested similar hypotheses by measuring change between pre and post test PRCA scores (although they used the PRCA 20), differentiated between sexes, and compared PSI speech instruction with another traditional form. They presented significant method differences, non-significant gender differences, and reported no significant interaction effect. While it appears that their conclusions contradict the findings of the present study, closer examination of their findings reveal noteworthy similarities. While we found that females showed significantly greater change than males and they did not, their data showed that females changed more than males, and the reported probability level of .08 is close to being significant. While they showed significantly more change in PSI sections than in other sections and we did not, our data also showed more change in the PSI sections with a reported probability level of .18. But the most important comparison is the interaction effect. We found that there was a great deal of improvement for everyone except for males in the traditional sections. In fact if the scores for these males were removed from the data, it appears that the gender effect would also disappear. Looking at the

results of the Gray (1987) data, the same tendency exists. The one group extremely deviant from the overall mean are males in the non-PSI sections. If these students were removed from the data pool, it appears that all the findings regarding method would probably disappear also.

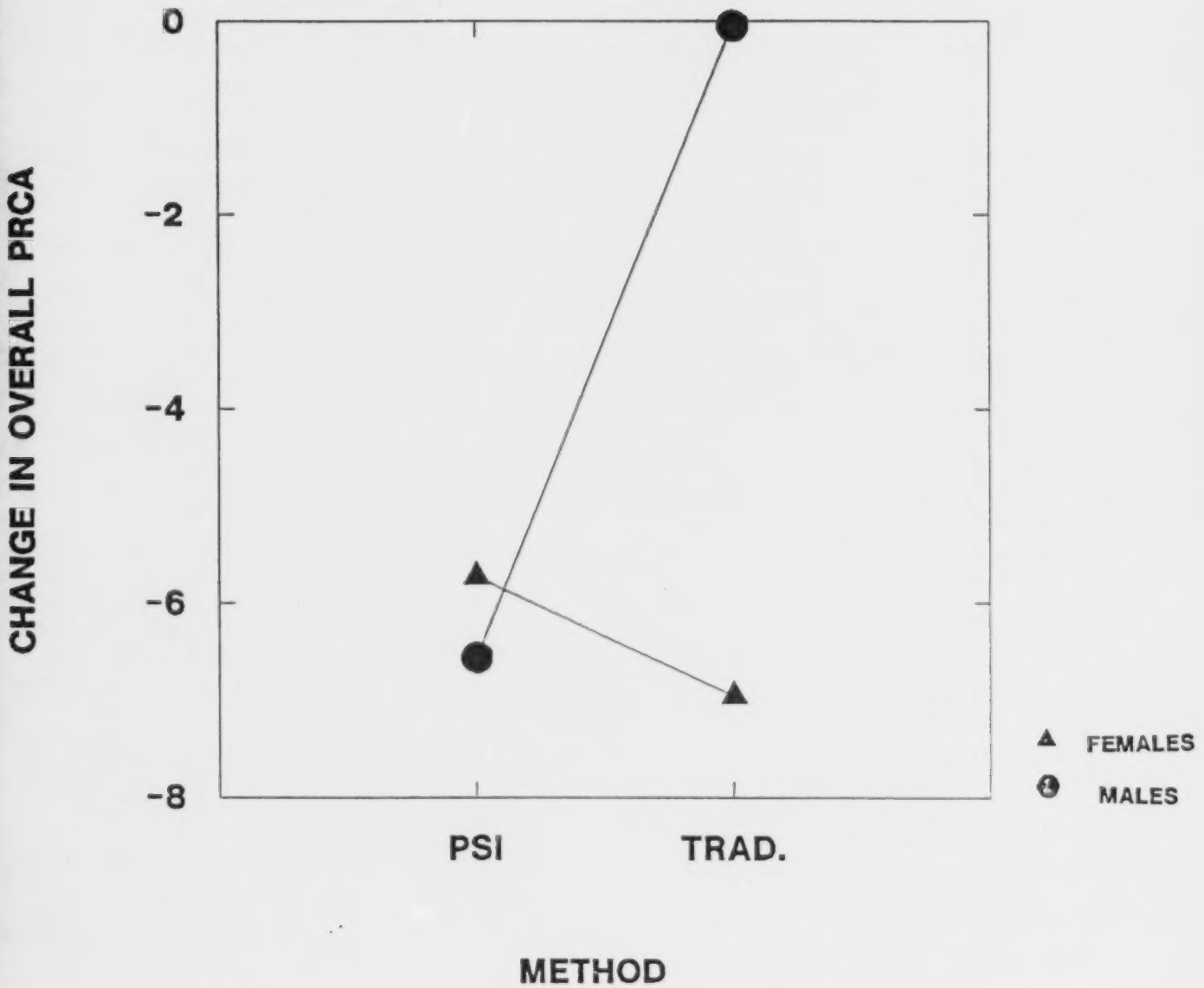
This raises the possibility that perhaps some of the differences in effectiveness between PSI and Traditional sections that others have found could be explained in part by the interaction between gender and instructional method. Also, if males do so poorly in Traditional sections, that may account for their not improving as much as females overall.

The data also shows a different relationship to communication apprehension in PSI and Traditional sections. The data clearly show that the amount of anxiety that the student begins the course with is an important determiner of the influence on anxiety during the course. For purposes of future research, this indicates that pretest scores should always be included as a covariate when looking at change in apprehension. For the purposes of instruction, it means that we need to begin to examine the Change process as it differentially effects students with different initial levels of anxiety. What is it about the traditional course that increases anxiety in students who initially score low, and is this desirable? What is it about the PSI course that moderates anxiety only for those who initially have high anxiety?

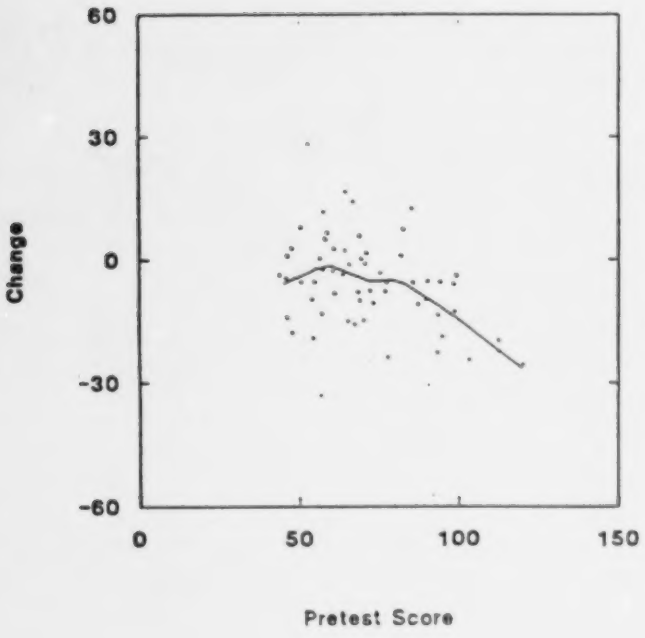
Questions that arise from the above are: 1.) Does what is happening with males in the different instructional methods have

anything to do with the learning styles of males? 2.) If low anxiety students increase their levels in Traditional sections, is this necessarily bad? McCroskey (??) states that levels of anxiety can be too low for effectiveness. It may be that students with low levels of communication apprehension, may not prepare as well and perform with less energy. 3.) Why is the effect different between instructional methods? Is it the larger and more formal audience in Traditional? Is PSI too protective to simulate the real world? Perhaps the UTAs are not pushing their students as hard as the more experienced TAs in the Traditional sections. 4.) If this is the case, what kind of changes do we need to make in PSI?

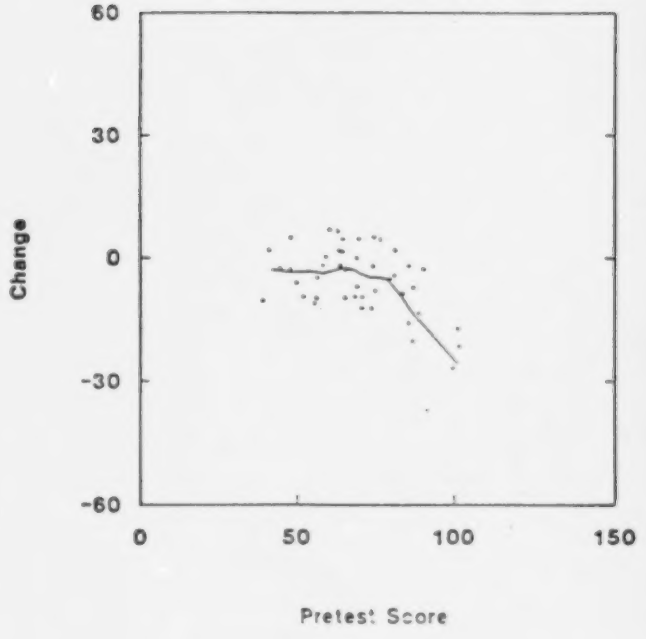
METHOD BY GENDER INTERACTION



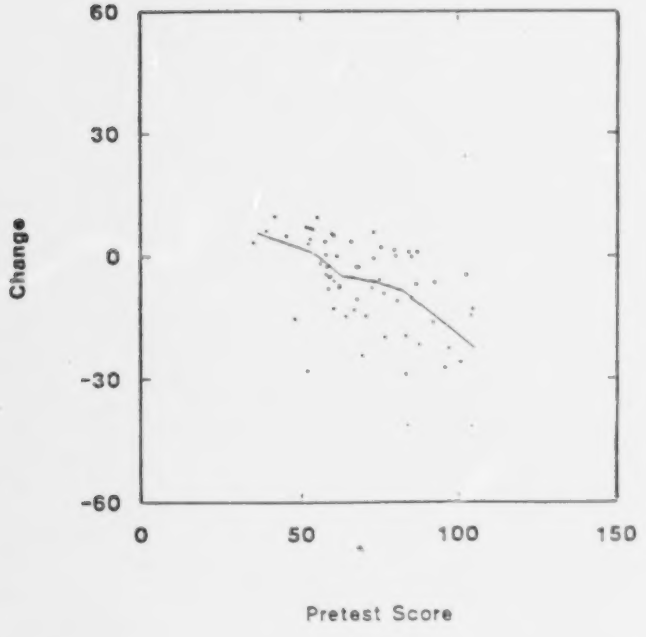
Females in PSI.



Males in PSI.



Females in Trad.



Males in Trad.

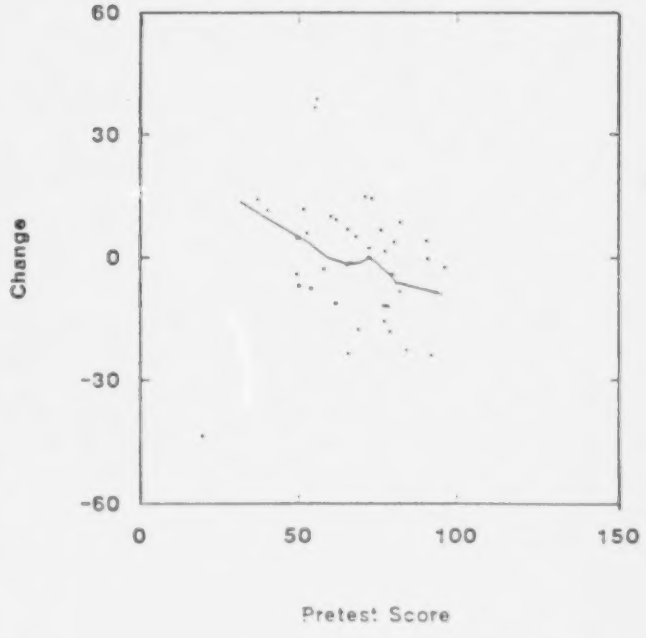


Table 1

Mean PRCA Overall Anxiety and Subtest Anxiety Scores For PSI and Traditional Sections of the Beginning Speech Course at the Beginning (Pre Test) and the End (Post Test) of the Semester

	Pre Test	Post Test
PSI Method		
Overall Anxiety	71.7	65.0 **
Dyadic Anxiety	16.2	15.4 **
Group Anxiety	17.2 +	15.6 **
Meeting Anxiety	17.9	16.8 **
Public Anxiety	20.1	17.9 **
Traditional Method		
Overall Anxiety	69.4	65.0 **
Dyadic Anxiety	15.9	15.5
Group Anxiety	16.2 +	15.2 *
Meeting Anxiety	17.5	16.2 **
Public Anxiety	19.6	18.1 **

+ These scores were significantly different from one another when scores from one method were compared with scores from the other method, using independent sample t tests, at the .05 level of significance.

* Scores for these subjects changed significantly between the pre test and the post test, using matched pair t tests, at the .05 level of significance.

** Pre test to post test scores for these subjects was significant at the .01 level of significance.

Table 2

F Values and Associated Probabilities Testing Effects of Method and Gender on Changes in Measures of Communication Apprehension

Source of Variance	Type of Apprehension Change				
	Overall	Public Group	Meeting	Dyadic	
	F (p)	F (p)	F (p)	F (p)	F (p)
Method (M)	2.187 (.141)	1.793 (.182)	.585 (.455)	1.228 (.269)	1.806 (.180)
Gender (G)	3.962 (.048)	.441 (.507)	3.796 (.053)	0.635 (.426)	7.251 (.008)
M x G	7.280 (.008)	5.574 (.019)	6.260 (.013)	1.313 (.253)	4.510 (.035)
Covariate	59.975 (.00)	77.621 (.00)	68.195 (.00)	63.316 (.00)	103.389 (.00)
Total DF	210.	246.	236.	245.	246.
Multiple R Sq.	.262	.258	.255	.216	.323

Note. The covariate used for each measure of apprehension change was the pretest score on that measure.

Table 3

Mean Change Score for Each Apprehension Measure for Students Grouped by Method And Gender

Apprehension Measure	Method	Gender	
		Male	Female
Overall Apprehension			
	PSI	-6.565	-5.733
	Trad.	-0.051	-6.955
Public			
	PSI	-2.677	-1.622
	Trad.	-0.949	-1.913
Group			
	PSI	-1.700	-1.319
	Trad.	+0.277	-1.803
Dyadic			
	PSI	-0.873	-0.833
	Trad.	+0.750	-1.000

Note. A negative change score indicates less reported anxiety at the end of the course.

Effects of Pedagogy on Speech Performance

John McKiernan

and

Eric Uecker

Speech courses are an important part of the liberal arts curriculum. At the University of South Dakota, as at many schools, the basic speech course serves both as a general education requirement and as an introduction to the speech major. Most educators agree the course should teach skills needed for effective participation in civic and professional life (Gibson, Hanna and Huddleston 1985, 290). Among the most important goals of a basic public speaking course is the ability to teach students to be more able speakers. Although many courses include elements beyond basic public speaking, many strongly expect students to emerge from the course with "proficiency in the . . . spoken word" (Boyer, 73).

Among the many approaches to the basic course are the traditional, self-contained course (hereafter TRAD) and the personalized system of instruction (PSI). Seiler (1983) names five essential elements of PSI: mastery learning, self-pacing, stress on the written word, undergraduate proctors, and using lectures primarily to motivate.

Comparisons of the two approaches have been done primarily by advocates of PSI. Seiler (1982) points out the advantages of setting up the program. Other studies include

Buerkel-Rothfuss & Yerby (1982); Gray, Buerkel-Rothfuss, and Thomas (1987); Gray, Buerkel-Rothfuss, and Yerby (1986); and Gray, Buerkel-Rothfuss, and Yerby (1989). Generally, these studies found PSI equal or superior to TRAD instruction on all measures, including student attitude towards instruction, alleviating communication apprehension, self-perceived growth in skills, grades on speeches, general academic achievement, and higher retention of material over time. Given such uniform superiority of results, it may seem surprising that overwhelmingly, departments continue to offer TRAD basic speech communication courses.

However, our review of research showed a lack of answers to a significant question: Does PSI instruction produce better speakers? We could not find a head to head comparison of speeches from the two instructional conditions. Instead, researchers compared speech grades, apparently assuming grades in varying instructional approaches were equivalent. The present study offers a more direct comparison of speech performance.

METHOD

Students in the University of South Dakota's Speech Communication 101 course in Fall, 1989, participated in a semester-long study of the two instructional approaches. Roughly half of the students preregister for PSI, filling the available sections. Some students preregister for TRAD sections from personal preference, but many wanting 101 take TRAD sections because they are available. During the semester, students used the same text and took examinations based on a common set of

items in a test bank. They also completed the same speech assignments, including introductory, narrative, informative and persuasive speeches. TRAD students give a speech once and graduate teaching assistants evaluate it using a point-based grading scale. Undergraduate lab assistants initially evaluate PSI students on a three position scale of excellent, acceptable, and unacceptable. PSI allows students to repeat the speeches to graduate student coordinators in order to achieve mastery or an improved evaluation. Otherwise, the evaluation of public speaking is similar in the two approaches. Both undergraduate and graduate student evaluators are expected to refer to the same written evaluation criteria, use the same evaluation forms, and write similar types of comments to the speakers. TRAD strongly encourages students to be present for all speeches, so there is a possibility that TRAD students saw more examples of student speaking and heard more oral critiques.

Near the end of the semester, students give their persuasive speech in TRAD and PSI sections. The assignment asked students to complete a six to eight minute speech to "change or modify the beliefs of your listeners." The assignment sheet also asks students for "logical proofs" and "adapting to your audience." We planned to videotape all speeches and did in TRAD sections. Due to equipment shortages, we were able to tape only nine of fifteen groups of PSI.

We asked students to sign release forms, allowing us to use their videotape in the study. Approximately 90 TRAD students gave their permission. Only 25 PSI students gave permission.

Recording difficulties reduced PSI to 18 usable speeches. We used all of these speeches. We matched the PSI tapes by selecting randomly among recorded TRAD speakers who had given permission.

We randomly placed the thirty-six PSI and TRAD speeches on five tapes. We assigned one faculty member and one graduate assistant to evaluate speeches on the tape, ensuring faculty or graduate assistants would not know students on the tape. Evaluators watched the tapes separately. They controlled how they viewed the tape, being free to either view straight through or stop in order to fill out the evaluation.

Each evaluator used an evaluation form similar to the usual class evaluation form. The form includes thirty separate aspects of speech performance, a holistic evaluation, and a ranking among speeches on the videotape. The aspects were divided into the areas of introduction, body, conclusion, delivery and overall evaluations. Evaluators had access to a standardized description of anchor points for the high, low and middle points on each criterium. To emphasize potential differences, we asked evaluators to modify the usually employed five-point scale, expanding to a seven point scale. The holistic evaluation used a 100 point grading scale, mentioning the common ten point scale of "90-100 equals an A, 80-89 equals a B, etc." The evaluator then rank ordered all the speeches on the tape, with the best as 1.

RESULTS

Results of the analysis of performance evaluations

showed PSI speakers were superior. Mean scores on every item except two were better for PSI than TRAD students. Those two items with superior TRAD scores were not statistically significant. The mean score on the holistic evaluation for PSI was 83.5 and for TRAD was 77.6.

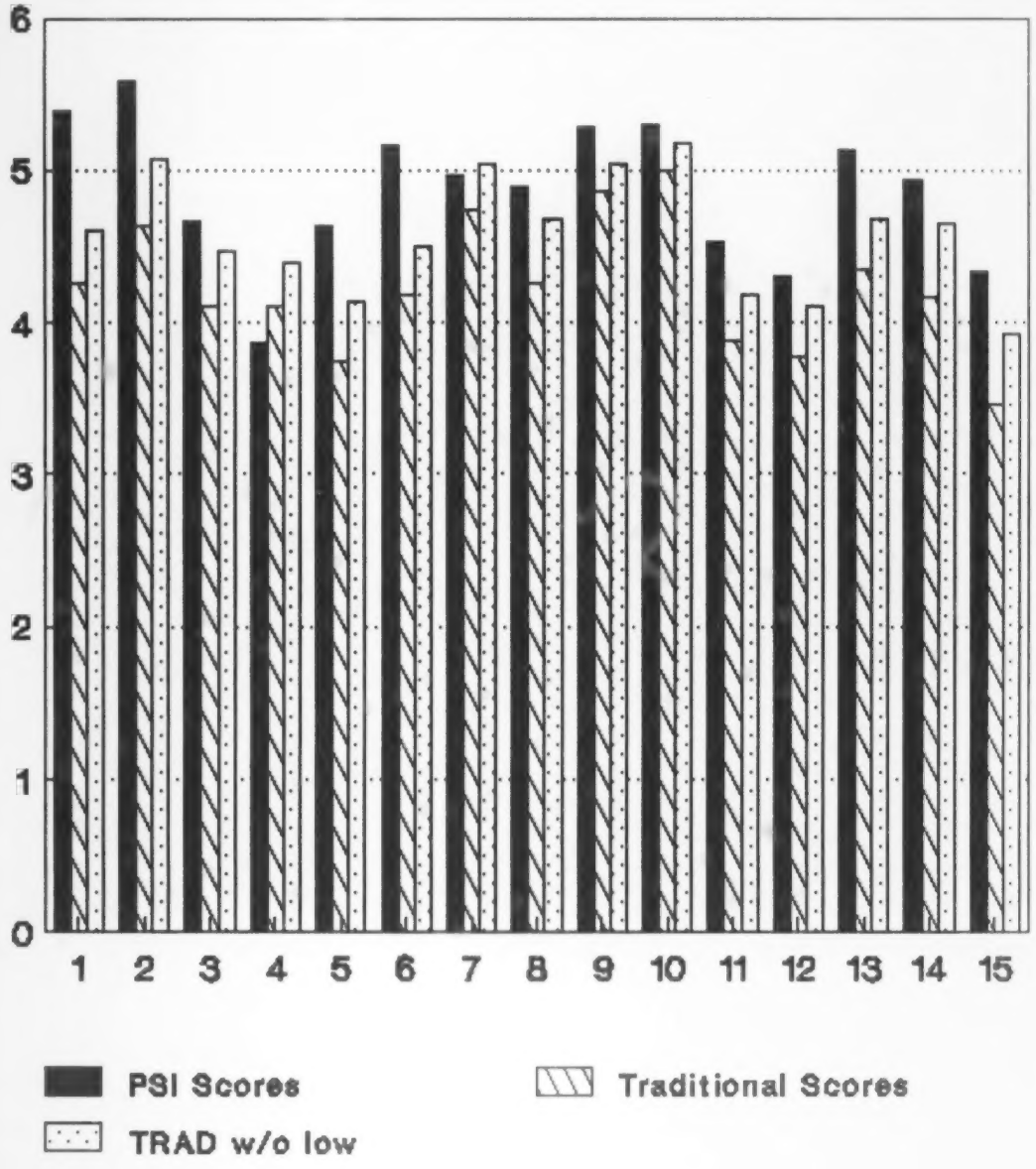
When analyzed, fourteen of the thirty variables did not show statistical significance at the .05 level. Eight variables were significant at the .05 level and an additional nine were significant at the .01 level. The holistic rating and the ranking of speakers were significant at the .01 level.

INSERT TABLE HERE
BAR CHART ON HOLISTIC LEVELS OF ACHIEVEMENT

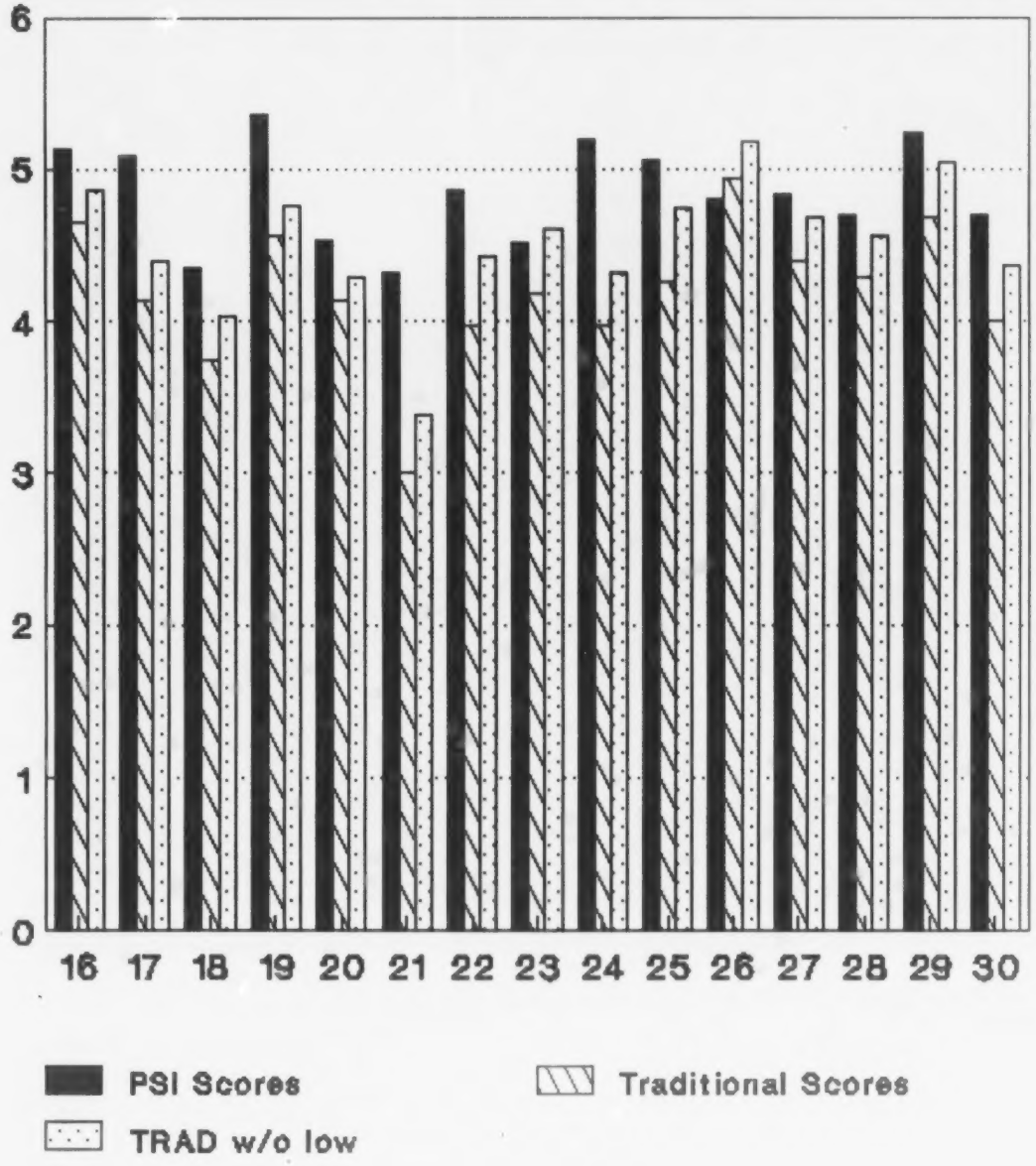
TABLE. PROBABILITY LEVELS OF SPEECH PERFORMANCE COMPARISONS.

SIGNIFICANT AT .01 LEVEL	NOT SIGNIFICANT
1 Gained attention and interest	4 Established credibility
2 Introduced topic clearly	7 Main points fully supported
3 Related topic to audience	8 Organization clear, planned
6 Main points clear & distinct	9 Language accurate & appropriate
17 Maintained eye contact	10 Language and meaning clear
19 Articulated words clearly	12 Main points were summarized
21 Presented visual aids well	16 Began speech without rushing
22 Used vocal variety	20 Used pauses clearly
24 Spoke with enthusiasm	23 Departed without rushing
31 Rating (100 point scale)	24 Spoke with enthusiasm
32 Ranking (1 is best)	26 Topic challenging
	27 Specific purpose well chosen
SIGNIFICANT AT .05 LEVEL	28 Message adapted to audience's knowledge and attitudes
5 Previewed body of speech	29 Speech completed within time
11 Transitions were present & useful	
13 Reinforced central idea/thesis	
14 Prepared audience for ending	
15 Vivid ending	
18 No distracting mannerisms	
25 Met assignment	
30 Held interest of audience	

Performance Scores, I



Performance scores, II



DISCUSSION

Searching for an explanation for the clear superiority of PSI student performance, several alternative explanations are possible. Though the research data which we gathered does not totally exclude these explanations, several seem likely to be discounted.

One possible explanation for difference in student performance is a variation in instructional materials or experience of the faculty involved. In our study, both TRAD and PSI used the same textbook and similar supplementary packets, eliminating varying material as a possible explanation. The three faculty members agreed on the general dimensions of the course, the textbook and the assignments. The TRAD students were taught by graduate students supervised by an experienced associate professor and an assistant professor with six years of teaching experience, but in his first year at this institution. The PSI students were proctored by undergraduate lab assistants, supervised by graduate assistants (including one who also taught a TRAD section), and lectured to by an assistant professor in her second year of teaching and her first at our institution. If there were any difference due to the expertise of the faculty, the edge would seem to be to TRAD sections. Of course, that would suggest the reverse of the actual findings.

Another possible explanation for significant differences in the result would be the gender of the students. Hughey (1984) found consistent evidence that females receive higher grades in communication courses and explained this phenomenon as an

outgrowth of a "sensitive speaker pattern."

Females in our sample did outperform males in both PSI and TRAD sections. The holistic rating mean for females was 82.190, for males 78.433. However, PSI and TRAD groups did not vary significantly by gender. Among all 101 sections, females outnumbered males by 195 to 145, or 57% to 42%. In TRAD, the proportion was 57% to 42%, in PSI, 56% to 42% (percentages do not add to 100% due to missing information). In our sampling of speeches, PSI had 10 females and 8 males (55.5% to 44.4%) and TRAD had 11 females and 7 males (61.1% to 38.8%). Again, if we try to explain the difference of performance by gender, the scores are in the wrong direction. If a gender effect explained the difference in speech scores, we would expect TRAD to do better in this study. The margin of performance difference among males and females was greater in the TRAD sections. TRAD section speeches, with a slightly higher proportion of females, should be superior. But they weren't.

Another explanation of the superior performance of PSI in this study may be the various self-selections of superior students into PSI sections. First, knowledgeable and well connected students seem to choose PSI. There is a persistent belief on our campus that PSI is a easier course, a belief substantiated by significantly higher grades given in previous semesters. PSI sections fill up first in registration and there are consistently greater pressures to fill any available slots in PSI. We also believe selection bias shows in our finding that 15% of the TRAD students would have preferred PSI, while 0% of

those in PSI would have preferred TRAD.

Next, sophomores and upperclass students self-select PSI in the pre-registration process and fill over 90 percent of available space in the course. Even the freshmen in the PSI sections we studied in Fall, 1990 may be second or third semester students. By comparison, TRAD sections enroll over 50 percent freshmen. Students adjusting to college are more likely to have difficulties in all their courses. On our campus, retention of freshmen (entering students who return the next fall) is approximately 70%. The upperclass students in TRAD may have enrolled for a variety of reasons. They may prefer self-contained classes, but the choice could be due to a failure to preregister or some scheduling conflict within the registration process. While subtle, these sorts of difficulties with the processes of academic life may contribute to lessened academic success, as well.

There also is another possible layer of self-selection in our sample. TRAD students were all videotaped and their graduate teaching assistants encouraged them to sign the release form to allow the speech to be a part of the study. PSI students were not all videotaped and there apparently was less effective encouragement to sign the release form. Discussion with the teaching assistants suggests a broad range of their TRAD students agreed to be a part of the study. A narrower range of mostly "good" students in PSI were willing to be videotaped and sign the release. Furthermore, the request for permission came just before the end of the semester. Students with lower grades in

TRAD sections may have been especially eager to please their instructors and thus comply with the request. There is no equivalent incentive in PSI, since LAs evaluating the speeches have less power, because they would not necessarily know which students volunteered, have limited discretion in grading, and any speech they gave a "bad" evaluation could be repeated.

Those most likely to be in TRAD courses and to be among our selected video tapes fit profiles of less successful students. We know that some students are academically or personally unprepared for college level work. The willingness to comply with requests of instructors also seems likely to include a student likely to perform at a lower level. Such self-selection may have a tremendous effect.

The range of scores supports this selection explanation. The high scores were nearly the same (95 for TRAD and 96 for PSI). No PSI student received a score of less than 70 on the 100 point scale, but the lowest TRAD score was 55. The bottom six TRAD speeches were rated below the lowest score of PSI.

In future research, the issue of self-selection can be controlled by creating more carefully matched cohorts of speakers within the instructional conditions. Individuals should be matched at least on grade expectations in the course, class status, and a common willingness to participate in the study. While the University of South Dakota probably will not change policies and randomly place students into the two approaches, other universities or colleges which do make such random assignments could perform such research easily. If the

University of South Dakota continues this research, the match will need to be done on a post-hoc analysis.

The superior performance of individuals in PSI suggested by earlier studies is supported by this research. The explanation for the superior speaking of PSI students may not be purely the result of the teaching method. However, at the very least PSI deserves additional study to clarify the reasons behind the stronger performance ratings. Other studies such as Buerkel-Rothfuss (1982), Gray, Buerkel-Rothfuss and Yerby (1986) and Gray, Buerkel-Rothfuss and Yerby (1989) find PSI to be a better total environment for learning. Taking into account the enthusiasm demonstrated by those wanting to take the class and the undeniably better performance on a common public speaking assignment, PSI appears to be a strong alternative to the TRAD approach to Fundamentals of Speech instruction.

References

Applegate, J.L. (1982). The impact of construct system development on communication and impression formation in persuasive contexts. Communication Monographs, 49, 277-289.

Berryman-Fink, C., & Pederson, L. (1981). Testing the effects of a competency-based interpersonal communication course. The Southern Speech Communication Journal, 46, 251-262.

Beatty, M. J. (1981). Receiver apprehension as a function of cognitive backlog. The Western Journal of Speech Communication, 45, 277-281.

Beatty, M.J., & Payne, S.K. (1985). Is construct differentiation loquacity? A motivational perspective. Human Communication Research, 11, 605-612.

Beatty, M.J., & Payne, S.K. (1984a). Listening comprehension as a function of cognitive complexity: A research note. Communication Monographs, 51, 85-89.

Beatty, M.J., & Payne, S.K. (1984b). Loquacity and Quantity of constructs as predictors of social perspective-taking. Communication Quarterly, 32, 207-210.

Beatty, M.J., & Payne, S.K. (1981). Receiver apprehension and cognitive complexity. The Western Journal of Speech Communication, 45, 363-369.

Buerkel-Rothfuss, N.L. and Yerby, J. (1982). PSI vs. a more traditional model for teaching the basic course. Paper presented at the annual meeting of the Speech Communication Association, Louisville, KY.

Burleson, B.R. (1984). Age, social-cognition development, and the use of comfort strategies. Communication Monographs, 51, 140-153.

Burleson, B.R. (1982). The development of comforting communication skills in childhood and adolescence. Child Development, 53, 1578-1588.

Burleson, B.R., & Samter, W. (1985). Consistencies in theoretical and naive evaluations of comforting messages. Communication Monographs, 52, 103-123.

Cahn, D.D., & Shulman, G.M. (1980). An exploratory study of the relationship between rhetorical sensitivity, leadership effectiveness, and rank in a military organization. (ERIC Document Reproduction Service, No. ED 210746).

Clark, R.A., & Delia, J.G. (1976). The development of functional persuasive skills in childhood and early adolescence. Child Development, 47, 1008-1014.

Crockett, W. H. (1965). Cognitive complexity and impression formation. In Progress in experimental personality research. Ed. B. A. Maher. New York: Academic P, pp. 47-

Deetz, S.A. (1986). Managing Interpersonal Communication. New York: Harper & Row.

Delia, J.G. (1978). The research and methodological commitments of a constructivist. Seminar Paper. Speech Communication Association.

Delia, J. G., & Clark, R. A. (1977). Cognitive complexity, social perception, and the development of listener-adapted communication in six-, eight-, ten-, and twelve-year-old boys. Communication Monographs, 44, 326-345.

Delia, J.G., Clark, R.A., & Switzer, D.E. (1979). The content of informal conversations as a function of interactants' interpersonal cognitive complexity. Communication Monographs, 46, 274-281.

Eadie, W.F., & Powell, R.G. (1986, November). Rhetorical sensitivity and persuasive communication behavior. Paper presented at the convention of the Speech Communication Association, Chicago, IL.

Gibson, J.W., Hanna, M.S., & Huddleston, B.M. (1985). The basic speech course at U.S. colleges and universities: IV. Communication Education 34, 281-291.

Gray, P.L., Buerkel-Rothfuss, N.L. and Thomas, R.W. (1987). Recognizing the impact of gender and other demographic/cognitive differences on learning and attitude formation in the basic course. Paper presented at the convention of the Speech Communication Association, Boston MA.

Gray, P.L., Buerkel-Rothfuss, N.L. and Yerby, J. (1986). A comparison between PSI-based and lecture-recitation formats of instruction in the introductory speech communication course. Communication Education, 35, 111-125.

Gray, P.L., Buerkel-Rothfuss, & Yerby, J. (1989, November). An alternative to PSI in the Basic Course in Speech Communication: the structured model of competency-based instruction (SMCI). Paper presented at the convention of the Speech Communication Association, San Francisco, CA.

Gray, P.L., Buerkel-Rothfuss, N.L. and Yerby, J. (1989). A comparison between PSI-based and self-contained formats of instruction in the introductory speech communication course. Basic Course Communication Annual, 43-69.

Hale, C.L. (1980). Cognitive complexity-simplicity as a determinant of communication effectiveness. Communication Monographs, 47, 304-311.

Hale, C.L. (1982). An investigation of the relationship between cognitive complexity and listener-adapted communication. Central States Speech Journal, 33, 339-344.

Hale, C.L. & Delia, J. G. (1976). Cognitive complexity and social perspective-taking. Communication Monographs, 43, 195-203.

Hanna, M.S., & Gibson, J.W. (1983). Programmed instruction in communication education: An idea behind its time. Communication Education, 32, 1-7.

Hart, R. P., & Burks, D. M. (1972). Rhetorical sensitivity and social interaction. Speech Monographs, 39, 75-91.

Hart, R.P., Carlson, R. E., & Eadie, W.F. (1980). Attitudes toward communication and the assessment of rhetorical sensitivity. Communication Monographs,47, 1-22.

Hughey, J.D. (1984). Why are women getting all those A's? Paper presented at the annual meeting of the Speech Communication Association, Chicago, IL.

Karlin, M.S. & Berger, R. (1974). Individualizing instruction: A complete guide for diagnosis, planning, teaching, and evaluation. West Nyack, NY, Parker.

Keller, F.S. (1974). Ten years of personalized instruction. Teaching of Psychology, 1, 4-9.

Keller, F.S. (1982). Pedagogue's Progress. Lawrence, KS, TRI Publications.

Keller, F.S. and Sherman, J.G. (eds.) (1974). The Keller Plan Handbook. Menlo Park, CA, W.A. Benjamin.

Keller, F.S. and Sherman, J.G. (1982). The PSI Handbook: Essays on personalized instruction. Menlo Park, CA, W. A. Benjamin.

Kelly, G. A. (1955). The psychology of personal constructs. New York: Norton. 2 vols.

Looft, W.R. (1972). Egocentrism and social interaction across the life span. Psychological Bulletin, 78, 74.

McMahan, E.M., & Stacks, D.W. (1984). The relationship between androgyny and cognitive complexity: An exploratory investigation. The Southern Speech Communication Journal, 49, 229-240.

Millar, D., & Newton, M.A. (1984, October). The relationship between rhetorical sensitivity, communication apprehension and the ability to decode nonverbal cues. Paper presented at the Annual Communication, Language and Gender Conference, Oxford,OH.

O'Keefe, B. J. (1988). The logic of message design: individual differences in reasoning about communication. Communication Monographs,55., 80-98.

O'Keefe, B.J., & Delia, J.G. (1979). Construct comprehensiveness and cognitive complexity as predictors of the number and strategic adaptation of arguments and appeals in a persuasive message. Communication Monographs, 46, 231-240.

O'Keefe, D.J., Sheperd, G.J., & Streeter, T. (1982). Role category questionnaire measures of cognitive complexity: Reliability and comparability of alternative forms. Central States Speech Journal, 33, 333-337.

O'Keefe, D.J., & Sypher, H.E. (1980). Cognitive complexity measures and the relationship of cognitive complexity to communication. Human Communication Research, 8, 72-92.

Pearson, J.C. (1981a, February). The relationship between rhetorical sensitivity and self-disclosure. Paper presented at the convention of the Western Speech Communication Association, San Jose, CA.

Pearson, J.C. (1981b, February). Sex, sex roles, and rhetorical sensitivity. Paper presented at the convention of the Western Speech Communication Association, San Jose,CA.

Piaget, J. (1970). Piaget's theory. Carmichael's Manual of Child Psychology, ed. Paul H. Mussen. 3rd ed. New York: Wiley, 703-32.

Powers, W.G., Jordan, W.J., & Street, R.L. (1979). Language indices in the measurement of cognitive complexity: Is complexity loquacity? Human Communication Research, 6, 69-73.

Ritter, E.M. (1979). Social perspective-taking ability, cognitive complexity and listener-adapted communication in early and late adolescence. Communication Monographs, 46, 40-51.

Rubin, R.B., & Henzl, S.A. (1984). Cognitive complexity, communication competence, and verbal ability. Communication Quarterly, 32, 263-270.

Samter, W., & Burleson, B.R. (1984). Cognitive and motivational influences on spontaneous comforting behavior. Human Communication Research, 11, 231-260.

Schoen, L. (1981). Teaching rhetorical and audience sensitivity. (ERIC Document Reproduction Service No. ED 250759).

Scott, M.D. & Young, T.J. (1976). Personalizing communication instruction. Communication Education, 25, 211-221.

Seiler, W.J. (1982). A rationale for using the personalized system of instruction (PSI) in the speech communication classroom. Paper presented at the convention of the Central States Speech Association, Milwaukee, WI.

Seiler, W.J. (1983). PSI: An attractive alternative for the basic speech communication course. Communication Education, 32, 15-25.

Seiler, W.J. & Fuss-Reineck, M. (1986). Developing the personalized system of instruction for the basic speech communication course. Communication Education, 32, 126-133.

Sherman, J.G. ed. (1974). Personalized System of Instruction: 41 Germinal Papers. Menlo Park, CA, W.A. Benjamin, Inc.

Sherman, J.G., Ruskin, R.S. & Lazar, R.M. (eds.) (1978). Personalized Instruction in Education Today. San Francisco, CA, San Francisco Press, Inc.

Sherman, J.G., Ruskin, R.S. & Semb, G.B. (eds.) (1982). The Personalized System of Instruction: 48 Germinal Papers. Menlo Park, CA, W.A. Benjamin, Inc.

Staton-Spicer, A.Q. & Bassett, R.E. (1980). A mastery learning approach to competency-based education for public speaking instruction. Communication Education, 29, 171-182.

Sypher, B.D., & Sypher, H.E. (1983). Perceptions of communication ability: Self-monitoring in an organizational setting. Personality and Social Psychology, 9, 297-304.

Sypher, B.D., & Zorn, T.E. (1986). Communication-related abilities and upward mobility: A longitudinal investigation. Human Communication Research, 12, 420-431.

Sypher, H.E., Witt, D.E., & Sypher, B.D. (1986). Interpersonal cognitive differentiation measures as predictors of written communication ability. Communication Monographs, 53, 376-382.

Taylor, A. (1986). A modified approach to PSI in COMM 100 Introduction to Communication as implemented at George Mason University. Paper presented at the annual meeting of the Eastern Communication Association.

Ward, S.A. (1981, November). Rhetorically sensitive supervisory communication: a situational analysis. Paper presented at the convention of the Speech Communication Association, Anaheim, CA.

Ward, S. W., Bluman, D.L., & Dauria, A. F. (1982). Rhetorical sensitivity recast: theoretical assumptions of an informal interpersonal rhetoric. Communication Quarterly, 30, 189-95.

Werner, J. (1957). The concept of development from a comparative and organismic view. The Concept of Development, ed. Dale G. Harris. Minneapolis: U of Minnesota P, 125-48.